SPAWAR
Systems Center
San Diego

TACTICAL COMMUNICATION SOLUTIONS

# Data Link Gateway

## DATA LINK TOOLS FOR EXTENDING THE TADIL TESTING NETWORK

The Data Link Gateway (DLGW) system provides cost-effective Tactical Digital Information Link (TADIL) connectivity to multiple data link test facilities and host combat systems to facilitate TADIL integration and interoperability testing.

The extended testing network is accomplished by the placement of a DLGW system at each test site. The DLGW systems are networked over secure telephone lines or higher speed circuits, enabling a virtual Link-16 and/or Link-11 network.

The DLGW can emulate or interface to a wide range of Joint Tactical Information Distribution System (JTIDS) or Multifunctional Information Distribution System (MIDS) terminal types. The DLGW software provides a suite of functions that enables users to participate in data link exercises. When DLGW systems are interconnected, a network is formed that can support up to 128 nodes.

## DLGW SYSTEM GOALS

Provide TADIL network connectivity to multiple data link test facilities and host combat systems.

- Extend communications environments to include a wider range of participants
- Facilitate interoperability testing and training

Provide tools to aid in the analysis, problem solving, and integration of host systems, terminals, and simulation equipment.

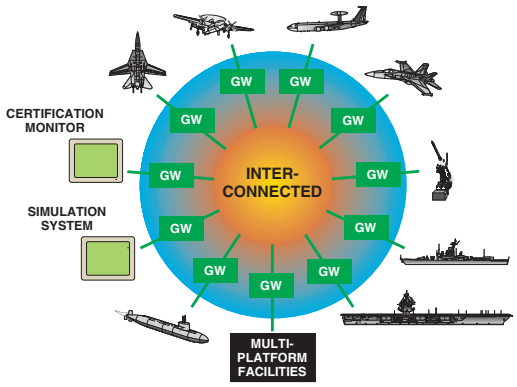
- Provide for distribution and delivery of scenario data
- Provide specialized interfaces and software features to accommodate specific user groups

## APPLICATIONS

- Host development testing
- Interoperability testing
- System validation
- Connectivity for live testing
- Deployment testing
- Proof-of-concept testing
- On-line analysis
- Crew training
- Mission monitoring
- Mission evaluation
- Crew debrief
- Impact analysis
- Demonstrations
- Beyond Line of Sight (BLOS) network projection

## MAJOR USER GROUPS

- Missile Defense System Exerciser (MDSE)
- Distributed Engineering Plant (DEP) and Joint Distributed Engineering Plant (JDEP)
- Joint Interoperability Test (JIT) Network
- Army Software Engineering Directorate (SED)
- Navy MIDS-Low Volume Terminal (LVT) Test and Evaluation Program
- Tactical Data Link Interoperability Testing Syndicate (TDLITS)
- Battle Force Tactical Trainer (BFTT) program
- Missile Defense Performance Integrator (MDPi)




## SYSTEM FEATURES

Can be configured to act as a Link-16 host system, as a data link terminal, as a virtual host and virtual terminal (in pairs), as a network monitor, or as a Link-11 Data Terminal Set (DTS) emulator.

**Host emulation** – allows multiple separate JTIDS networks to communicate in a coordinated network.

- Satisfies host interface
- Invisible host – TADIL information exchanged, but terminal controlled by DLGW host does not generate Precise Position Location and Identification (PPLI) message; allows remote users to send their PPLI and track information to the live net.
- Initialization and status block tools
- TADIL J message breakout
- Interface data extraction
- Specialized terminal load required – provided by JTIDS Network Library (JNL) build software

**Terminal emulation** – allows TADIL J-capable systems to communicate without real terminals.

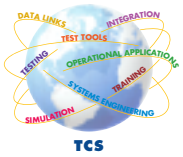
- Satisfies terminal interface in accordance with applicable Interface Control Document (ICD)
- Receipt/Compliance processing
- Data silent operation
- TADIL J message breakout
- Host message filtering
- Time Slot Allocation (TSA)
- Terminal control, terminal monitoring
- Initialization and status block tools

**Virtual host/virtual terminal pair** – allows host system to control remote terminal.

- Must work as a matched set (Gateway Virtual Terminal [GVT] looks like terminal to host; Gateway Virtual Host [GVH] looks like host to terminal)
- Supports Class II (air and ship) terminals, MIDS Platform A

**Network monitor** – displays tactical picture. Allows on-line review and collection of tactical data.

**Link-11 DTS emulation** – allows Link-11 Tactical Data System to connect to other DLGWs to pass Link-11 data.

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## SYSTEM FEATURES (CONTINUED)

DLGW can emulate or interface to a wide range of JTIDS/MIDS terminal types:

- Gateway Host
  - – Airborne Class II
    - • F-14D, E-2C
  - – Shipboard Class II
  - – Class 2H
    - • Boeing E-3
    - • USMC Modular Control Equipment (MCE)
  - – F-15 Class II
  - – Class 2M (future)
  - – MIDS
- Gateway Terminal Emulator
  - – Airborne Class II
    - • F-14D, E-2C
  - – Shipboard Class II
  - – Class 2H
    - • Boeing E-3
    - • USMC MCE
  - – Class 2M
  - – MIDS
- Data Terminal Emulator (Link-11, DTS Types A/B)
  - – Navy Tactical Data System (NTDS)
  - – Airborne Tactical Data System (ATDS)

Features available in all DLGW modes of operation:

- User-friendly menu-driven graphical interface
- Data extraction and data reduction
- Data replay (to DLGW network and host system for data extraction)
- Time synchronization
- JTIDS Network Load tools
- Gateway node status
- Geographic situation display (real-time; tracks; PPLIs)
- Exchange of information in STANAG 5602 (SIMPLE) compliant format

DLGW systems can be specially configured to suit the user's mission requirements, i.e., a single configuration (Shipboard Class II) or multi-configuration (Shipboard Class II, Airborne Class II, and USMC MCE). Customization items include, but are not limited to:

- Target terminal type
- Target mode(s) of operation
- Target TADIL message capabilities
- Target I/O boards installed

Note: While all platform emulations can be resident on a single DLTT system, only one may be running at a time.

## SYSTEM COMPONENTS/SUPPORT

DLTT systems are configured at the Space and Naval Warfare Systems Center, San Diego (SSC San Diego). Modular design and open architecture allow for flexibility and rapid integration of new interfaces and capabilities to suit user needs. The application package includes:

- High-speed single board computer (Pentium), monitor, keyboard
- Removable hard drive, floppy drive, and CD-RW drive
- Timing board
- Asynchronous interface board
- Host terminal interface board
- Operating system software
- DLGW program software

The Tactical Communication Solutions group at SSC San Diego provides full and flexible support services for DLTT users, including system configuration, installation, training, ongoing technical support, and upgrade program options.

The DLGW is patented and is validated by U.S. test agencies (Joint Interoperability Test Command, Navy Center for Tactical Systems Interoperability).

## FURTHER INFORMATION

Data Link Test Tools are a family of applications developed and maintained by the Tactical Communication Solutions (TCS) group at SSC San Diego, Code 245, to facilitate TADIL integration and interoperability testing.

Further information on the Data Link Gateway system, other Data Link Test Tools, and other TCS services is available at the following:

TCS Web Site: http://gateway.spawar.navy.mil

Send email to: gwinfo@spawar.navy.mil

Telephone (toll free in the U.S.): 1-888-GWLinks (495-4657) or (619) 553-6622

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